The Gas Salesman and Gas Service.

Vol. 5, No. 58.]

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APPOINTMENTS & PROMOTIONS.

Gas Salesmen, Showroom Attendants, and Manufacturers' Representatives are invited to send information as to promotion or changes in appointment for publication under this heading.

NOTICES.

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AN EXTRA NUMBER.

An extra issue of "THE GAS SALESMAN," containing reports of the Industrial Salesmen's Conference in Glasgow to-day and of other meetings, will be made next Wednesday, May 5.

EDITORIAL.

Plain Speaking.

We have read, with more than ordinary interest, the address which Mr. J. J. Scott, the Engineer and Manager of the Cowdenbeath Gas Company, delivered to the Scottish Circle at their March meeting (*ante*, p. 87), because what he had to say was divided into two thoughtful and engaging parts. In the first, there was admonition and advice to the members of the Circle; in the second, an account of the successful development policy practised by his Company. Mr. Scott has made a study of the Scottish Circle; he has read the papers and discussions, and the members heard what he thought of their proceedings. This is good, as it will set the members thinking how they can improve matters. But high esteem for the address does not mean that we agree that all in it is universally applicable. We know from experience that it is not.

Mr. Scott told the members in his introductory statements that, as the result of attending their meetings and reading their papers and discussions, he is inclined to think they are not getting down to their work in a proper way. There appears to him to be a tendency towards complaining and discussing subjects outside the scope of the Circle. In his view, undoubtedly the success of the Circle depends on how far the policy and support of the management of undertakings obtain in the development of sales, and equally the efficiency and proper organization of the Circle helps to develop the attention of the management towards a policy in the sales department. Mr. Scott has also observed a feeling of impatience, disappointment, and even grumbling among salesmen regarding the lack of push, policy, interest, and encouragement by the management and administration of gas undertakings towards the endeavours and suggestions of salesmen. He urged that such thoughts should be cleared out of the heads of salesmen, and a reason be sought for any delay or so-called indifference. It will, he says, be generally found that there is a sympathetic desire to meet the salesmen, but that the difficulty is one of finance.

Regarding this admonition, we have not seen, in the reports of meetings of the Circle, any prominent allusion to the foregoing matters. Gas salesmen are usually circumspect in the expression of opinions. It is no part of their Circle proceedings to say anything which would cause them to fall foul of those who are their superior officers or of the administrators of the concerns they serve. But let us grant that there are in some cases feelings of "impatience, disappointment, and even grumbling" among salesmen. We know from long experience that there are—shall we say?—not a few instances in which finance is not the only cause which produces such feelings. Ability in administration and foresight play a not unimportant part in the formulation of policy—just as important a part as finance; and we are afraid that the want of those qualities more frequently than is desirable is not a negligible influence in producing sluggish progress, and consequently financial disadvantage to the undertaking. Many gas engineers have on their boards of directors and committees men of great ability and foresight; and they are happy in the headway they can make through that circumstance—like Mr. Scott at Cowdenbeath. But we have heard other engineers and managers say that their schemes for producing advance are turned-down by the administration because money has to be spent. We can conceive that the financial conditions of those undertakings will not improve, but will tend to become worse. In such cases, Mr. Scott's reference to each undertaking having to deal with its own problems in finance may have an increasing applicability through lethargy and want of enterprise when time has been opportune. Enterprise would alter the financial position of certain backward concerns. We look round, and ask, Is it not true there are gas under-

takings which lack push? Is it not true there are gas undertakings still going along in the old ruts without any effort to conform their trading policy with current conditions, believing that the old-fashioned ways are good enough? Where such circumstances obtain, surely interest and encouragement are absent; and the salesman (like the manager) is entitled to feel aggrieved. Both interest and encouragement are important factors in the work of a salesman.

Our comment notwithstanding, we agree with Mr. Scott that policy in public service must be determined by local conditions, and that it then lies with the salesman to do the best possible with it. But what the salesman complains of (where there is complaint) is the entire ignoring of modern service policy in some undertakings; and we can pardon his feelings when he sees how much better, more helpful, and more advanced is the policy in other undertakings—perhaps the one in the next gas-supply area. In such a case, it is not pleasant to have belittling comparisons made which reflect on the manager or salesman while truly chargeable to the administration.

The interpretation Mr. Scott gives to the objects of Salesmen's Circles is, of course, correct. A Circle is, if not a "training centre" for salesmen, a centre where an exchange of knowledge is obtained, where the compiling of facts, figures, and arguments relating to the use of gas and gas apparatus is carried on—all of which are essential to the salesman who has to advise the consumer what best suits his requirements, and give him sound, simple facts of costs and utility. To Mr. Scott's mind, the quoting of efficiencies and other technicalities are out of place, unless specially requested. But he admits that the salesman must equip himself with the latter information. We agree. It is more essential to-day than ever. That is why, in our opinion, it would be a pity to lower to an elementary standard the proceedings at the meetings of the Circles. A man who occupies the position of a gas salesman should have passed the rudimentary stage; and the Circles should be the means of amplifying knowledge. We want to see the standard of proceedings progressively raised. One reason is because of competition. Our electrical friends are not slow in quoting efficiencies. With the efficiencies at the consumer's end—efficiencies actual or hypothetical—they try to ward-off not only the utilization efficiencies of gas, but gas manufacturing efficiencies. We have heard electrical salesman at exhibitions quote efficiencies for gas utilization which have no identity with truth. Our gas salesman must be capable, and not slow, in dealing with such deception; and they may not be "requested" to do so, even by people who have had electrical comparisons, but are not in the position to test their veracity. We think it must be left to the discretion of the gas salesman where and when he applies efficiencies and other technicalities. We can imagine that in a mining area like Cowdenbeath such application would not frequently be needed; but in a district where there are many professional and other educated people, the knowledge and the application of it may be of supreme importance.

The second part of the address deals with the facts of experience with a generous policy at Cowdenbeath, and an organization in the three districts into which the supply area is divided. We like the idea of having a responsible superintendent, with the members of his staff, resident in each area, so as to be in contact with, and be known by, the people; also with office, showroom, and workshops complete for all and every service. Cowdenbeath is a place where the local conditions have largely brought about the lines of policy; but despite coal availability, there has, through the applied policy, been an expansion of business upon which Mr. Scott and his Directors may be heartily congratulated. If any gas manager or salesman has missed reading these experiences, we advise him to turn to p. 88 of "THE GAS SALESMAN" for March 31.

Percentage of Stoves on Hire.

THERE are many ways in which gas salesmen can apply tests to ascertain, and keep records of, the progress that is being made in their work. One, of course, is the increase in total gas consumption. That is interesting, but not so much as a test (say) based on the average consumption per ordinary and per prepayment consumer. Calculation made year by year on such a basis is an indication of the good and profitable work that is being done in increasing the sale of gas through existing service pipes and meters, which business is often more profitable than that resulting from obtaining new consumers; but the new consumers extend the ground on which similar developing work can be carried on. Another highly instructive test, if the data are kept going year by year, is "the percentage of stoves at rental to consumers." Mr. F. J. Bradfield, the General Manager and Secretary of the Commercial Gas Company, publishes year by year a comparative analysis of the working results of the three Metropolitan Gas Companies and of four Suburban Gas Companies; and among the general statistics are figures referring to the percentage of stoves at rental to consumers. According to his tabulated statement, the South Suburban Gas Company had, at the end of last year, 116 stoves out on rental per 100 consumers; the South Metropolitan Company came next with 111; the Wandsworth Company followed with 98; the Commercial Company, with 96; the Brentford Company, with 95; the Gas Light Company, with 87; and the Tottenham Company, with 84. These figures are interesting; but of course, their positions might be varied if we knew and added the number of stoves privately owned and those which are being acquired on the hire-purchase system. Nevertheless, the percentage of stoves at rental serves as a good index to progress in the domestic heating business. Such statistics are worth preserving—not only for the interest they convey, but because they serve as an incentive. How do other undertakings stand in this respect? Are there any in better case than the Metropolitan Companies and the Suburban ones mentioned? Can any boast of a higher figure than the South Suburban Company's 116? We know there has been a lively development in the fixing of stoves on hire during the past few years. The first year of the publication in the "GAS JOURNAL" of Mr. Bradfield's tables was 1912; the data being for the year 1911. The "percentage of stoves at rental to consumers" of the South Suburban Company in that year was 85, as against 116 for last year. The percentage of the South Metropolitan Company was then 88, as compared with 111 last year; that of the Wandsworth Company was 88, and now 98; the Commercial Company then only had 62, as compared with 96 now. We have not the figure for the Brentford Company for 1911; but the Gas Light Company's percentage was then 68, as against 87 now; and the Tottenham Company then stood at 41, and now at 84. The compilation shows how the stove-hiring business has increased, particularly having regard to the growth in the number of consumers. But, as previously remarked, the percentages are incomplete as representing the total percentage of stoves to consumers, in view of the unavoidable omission of stoves on hire-purchase or privately owned. If any undertakings have made a complete canvass of their area, and can produce the percentage of total stove connections to consumers, we should be pleased to have them. Or if any undertaking can beat the South Suburban 116 on hire per 100 consumers, we shall be glad to publish the information. It is good to have business rivalry in the matter of such records. They help to stimulate energies and to create new ideals.

Personal.

Mr. A. W. CULLINGTON, of the Woking Gas Company, has been appointed Showroom Manager to the Stroud Gas Light and Coke Company.

At a meeting of the South Wales and Monmouthshire Circle on March 25, Mr. B. J. BELL, of Cardiff, the Secretary of the Circle, tendered his resignation of the office, on account of pressure of business. This was accepted with regret, and a vote of thanks was accorded him for his valuable work since the inception of the Circle. Mr. R. J. WILLIAMS, of Abertillery, has been elected Secretary.

B.C.G.A. District Conferences.—On Friday next a short conference of the British Commercial Gas Association will be held at Perth during the afternoon, following the inauguration of the gas-works extensions in the morning. Two other conferences have been arranged—one at Buxton, on May 14, and the other at Wallasey, on May 18. Full details of the proceedings at these conferences were given in the "GAS JOURNAL" for April 21, p. 149.

Jottings.

It must not be forgotten that there is considerable radiation from coke stoves. For a surface temperature of only 200° Fahr., radiation and convection from a coke stove are approximately equal. The low radiating value of these stoves is due to the low rate of fuel consumption required, rather than to any diminution of the radiation efficiency as compared with that of open coal or coke fires. The radiation is less intense, but the radiating surface is considerably extended, and its effect in positions nearby allows a reduction in the room temperature needed for comfort.

* * *

In his Presidential Address before the Midland Association of Gas Engineers and Managers, Mr. F. C. Briggs, of Dudley, said that in his district the maintenance of consumers' appliance in efficient condition is considered to be of primary importance. A scheme of regular attention at a small fixed charge was initiated; but this proved a failure, for few consumers would adopt the scheme. Free maintenance of all appliances, whether on hire, hire-purchase, or the consumer's own property, has now been adopted; a charge being made for all materials used, such as mantles, glassware, &c. Parts of hire-purchase apparatus proving defective during the hire-purchase period are replaced free. The scheme is successful; about 23 p.ct. of the Dudley Company's ordinary meter consumers having adopted it. The principle of hire purchase rather than simple hire is favoured, and the hire list of cookers has been reduced to the two most popular sizes of each of two patterns; but an extensive list of cookers is offered on three or seven year terms. Practically all the appliances are fixed free within certain limits. The cost of free fixing, said Mr. Briggs, is balanced by the net profit on the appliance. It is a principle that this type of business should involve no financial loss. Working on these lines, the consumption of the Company has increased to over 276 million c.ft.—an increase of 38·8 p.ct.—and the consumers from 6788 to 10,103, since 1914.

* * *

In his presidential address before the Southern Association of Gas Engineers and Managers, Mr. R. Robertson, of Bristol, called attention to the growth of the Bristol Gas Company. It is interesting to note that the inauguration of the Corporation Electricity Department, in 1893, marked the beginning of a definite acceleration in the growth both of the quantity of gas sold and of the number of consumers. Between 1875 and 1893, the annual increment in the gas sold was 42 million c.ft., and in the number of consumers 310. From 1893 to 1925 the figures were 67 million c.ft. and 1848 respectively. The moral is obvious.

* * *

The Bristol Company, by the way, are making special efforts to promote the local sales of coke. Last year 62,000 tons, or 80 p.ct. of the total coke sold, was disposed of in Bristol. Of this amount, nearly 10,000 tons were sold direct to small consumers for domestic use in ½ cwt. and 1 cwt. lots.

* * *

As a result of the educational campaign launched to combat the smoke nuisance in London and the provincial centres, many schools have recently adopted gaseous heating. For example, Wellington College have installed, in the class-rooms, studies, and staff sitting-rooms, gas burning appliances which combine the cheeriness and warmth of the coal fire with the advantages of a hygienic and perfectly-ventilated system of heating by radiation. The discomfort caused by the smoke and soot of open coal-burning grates induced some school authorities to discontinue them in favour of closed anthracite stoves and electric heaters; but these have now been superseded by the latest type of injector-ventilator gas fire.

* * *

The Principal of a well-known college in the South of England states: "Gas stoves in our class-rooms have been a great boon to us. For many years we have been burning coal, and our rooms have received an exceptional amount of dust during the winter seasons." In a letter to the suppliers, the head of St. Anne's School, Weymouth, writes: "We have found these stoves a great convenience; and the saving in expense is considerable. The labour and dirt occasioned by the old coal fires have been done away with, and the temperature of the school-rooms is more easily regulated. We tried electric heaters, but the expense of these was ruinous—we find that gas heats efficiently and effectively *at a fraction of the cost.*"

* * *

At the end of last month new central showrooms of the Gas Light and Coke Company were opened at Horseferry Road, and an illustrated description appeared in the "GAS JOURNAL" for March 31, p. 802. The photographs accompanying that account show how beautifully these showrooms are fitted up. In every detail the Company have studied the comfort of their customers. A private telephone box for consumers' use adjoins the reception lounge, which is complete with a writing table; and there is a private pillar box—one of the most ornamental we have yet seen. The new premises are indeed fitting "headquarters" showrooms for the British gas industry.

* * *

One or two interesting features of these showrooms may be mentioned here. One of the first points which impressed us was that all piping to fires, which are displayed in suitable surrounds, is out of sight, thus enhancing the general effect. Sectionalization of appliances is carried out, with the result that there is not the slightest suggestion of overcrowding, and the consumer is able to concentrate his or her attention on a single piece of apparatus with the greatest possible ease. One room is devoted to fires, another to cookers, another to hot water apparatus, and so on; and in each case the smaller fittings are neatly placed in corner cupboards. There is an hotel kitchen, and there is a white-tiled boiler room containing a Spencer-Bonecourt gas-heated boiler which serves for the heating of the showrooms and at the same time is an outstanding example of the convenience, efficiency, and absolute cleanliness of such an installation. A series of model rooms—comprising a dining room, a library, a hall, a kitchen, and a bathroom—demonstrates with what excellent effect gas can be applied to lighting, heating, cooking, and water heating.

* * *

Of course, it is impossible for every gas company to have showrooms as elaborate as those at Horseferry Road, nor, indeed, is it desirable. But, as Mr. H. H. Creasey remarked at this month's meeting of the Southern District (London Area) Circle, the general effect of a showroom is not dependent on size, for even a small display can be made attractive. This statement was made in the discussion which followed a paper by Mr. A. S. Stainer, of the Gas Light and Coke Company, on the "Branch Showroom." In the same discussion, Mr. H. S. Meade, also of the Gas Light and Coke Company, put forward the view that many consumers do not enter showrooms unless they know the prices of the appliances they require. This may be due to timidity; but whatever the cause, there is undoubtedly a great deal of truth in Mr. Meade's contention that people "buy from the window." For this reason, full information should be given on the price tickets, which should be of uniform size and lettering, as is the case at the new showrooms at Horseferry Road.

* * *

"Showroom Practice" was the title of an interesting paper read before the West Riding of Yorkshire Circle by Mr. P. Shepherd, of the Leeds Corporation Gas Department, on March 17. He mentions that medical men are becoming enthusiastic supporters of gas for heating in the sick-room, whereby a strictly regulated and constant temperature can be maintained without any disturbance of the patient. As evidence of this, a Leeds specialist on chest complaints has installed gas fires in all his rooms. This is a useful "talking-point."

* * *

Mr. Shepherd states that in Leeds they allow a 10 p.ct. discount off the makers' list-prices for cash transactions, whereas the full list-price is charged on the three years' hire-purchase. "To the average consumer," he continues, "this does not appear to be a big saving. They look upon this as a matter of 3⅓ p.ct. per annum, but actually there is a saving of over 7½ p.ct. per annum for the consumer by paying cash down." The author then follows by a table of figures, proving his statement. This, of course, is only a matter of mathematical juggling on the part of the author. An appliance of the value of £12 list-price could be sold outright for £10 16s. By the cash sale, then, the consumer saves £1 4s. All the argument in the world will not alter this fact; and it seems to us a great pity to confuse a harassed housewife by a set of figures wholly unintelligible to her, and thereby induce her to pay cash. This does not seem to be the way to ensure the permanent and wholehearted satisfaction of the consumer.

* * *

In the course of the discussion which followed Mr. Shepherd's paper, reference was made to price tickets. Mr. S. H. Packer, of Bradford, advocated separate tickets for cash, hire purchase, and hire. He suggested that at times it was advisable to have a display of all cash prices, and at another time all hire purchase. Mr. Shepherd, in common with many others, does not share this view. He considers it advisable to give consumers all the information possible. At Leeds they put on the tickets the cash, hire-purchase, and simple-hire prices.

* * *

If all burners and appliances are of sound construction, said Mr. T. B. Armitage, of Cheltenham, in a paper before the Midlands this month, and have been fitted by competent workmen, there will be no necessity to send round maintenance men at very short intervals. Mr. Armitage was referring, of course, to domestic burners. Frequent attention to burners installed in factories, public halls, shops, &c., is essential. He went on to say that it should be the aim of all gas undertakings to purchase only fittings of sound construction, and to shun the shoddy goods which have only cheapness in first cost to recommend them. It is not enough for a gas company to say they have a sale for this class of goods. Were all gas concerns of one mind, and refrained from purchasing inferior fittings, their manufacture would soon cease. Mr. Armitage thinks that insufficient attention is paid to this important question.

An Elementary Treatise on Gas Lighting.

For the Student Gas Salesman.

[COMMUNICATED.]

(*Continued from p.* 83.)

Owing to their robust constitution, polished metal and white enamelled iron and steel reflectors (in the writer's opinion the latter are usually preferable—for one thing they can be cleaned more easily) find their chief employment in factory and workshop lighting; and various types of shallow and deep shades and reflectors are available. In some cases it is desirable to spread the light over a relatively wide area—for example, a compositor's bench—or, alternatively, to focus the light upon a small area—as, for instance, a watchmaker's job of work. In the former case a somewhat shallow form of metal reflector would probably be used; and there should be employed therewith a translucent globe or bulb to reduce the intrinsic brilliancy of the source, which would not be screened by the shade or reflector. With a deep reflector, completely screening the source from the worker's eye, diffusing glassware, is, of course, unnecessary. In the 1921 Home Office Departmental Committee's report, containing detailed recommendations in regard to industrial lighting, reference is made to shading lights adequately, so that no incandescent mantle is distinguishable as such when viewed through the globe or shade. A novel type of industrial lighting unit recently brought out by William Sugg & Co. makes use of a band reflector of white enamelled metal (see fig. 156); and the effect of a carefully

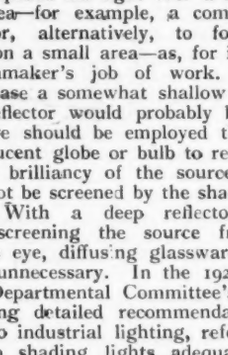


Fig. 156.—Sugg's "Belvedere" Fitting.

planned system of these units, as seen by the writer in a large machine shop, is distinctly good—adequate light being directed on to the lathes, &c., and eye fatigue eliminated by a sufficiency of light finding its way to the upper regions of the lofty shop. Enamelled metal reflectors are used to a great extent for outdoor lamps; and parabolic reflectors of either the same material or polished aluminium find various uses—viz., for road signs, shop windows, and special focussing functions. But wherever conditions permit, translucent materials are much to be preferred to opaque materials; and with glass there exist numerous opportunities to control reflection and refraction scientifically (particularly is this the case with prismatic glass). Moreover, one has a wide range of choice as regards colour, opacity, and finish.

In common with globes, reflectors should give a complete diffusion and consequent softening of light, which secures the elimination of glare, streaks, and bright points; but they should go one long step further. Reflectors should give a better distribution of the rays; the strongest light being directed where the greatest illumination is required, thus securing increased illumination and economy. These are the two primary objects claimed on behalf of "Holophane" reflectors, which certainly deserve the close attention of the gas industry. Very striking are some of the results achieved by this firm's bowl and band type refractors used with public street lamps to give an efficient lateral extension of illumination, whereby the diversity factor—*i.e.*, the ratio of maximum to minimum illumination—is considerably reduced, enabling the provision of minimum illumination values well above those existing at present, even in the most brightly lighted streets. Fig. 157 shows the performance of a symmetrical bowl refractor, giving a symmetrical light distribution all round the unit, the maximum candle-power being given in a zone from 70° to 80° from the vertical. Special refractors are available which concentrate the light rays in two or four directions, instead of symmetrically round the unit. One two-way type, non-axial (160°) bowl refractor, distributes the two main beams at an angle of 160° horizontally, the maximum candle-power being given from 70° to 80° from the vertical in two directions. This type is therefore well suited for lamps installed at the side of the road and between street intersections. Another two-way type, axial (180°) bowl refractor, distributes the two main beams at an angle 180° horizontally, the maximum candle-power being given in the 70° to 80° zone, as before; and this accessory lends itself for employment with lamps placed in the centre of the road and between street intersections. The prism formation of the four-way 90° bowl refractor is designed to concentrate the light rays in four directions—every 90° round the unit. The band type refractor gives a symmetrical distribution somewhat similar to that of the standard symmetrical bowl as shown in fig. 157, but it permits more light to be given directly under the units for the lighting of islands, crossings, &c.

Now a globe is mainly a diffusing agent; a shade is primarily intended to screen the light source by intercepting its rays in a particular direction; and, as distinct from both, the principal function of a reflector is to redirect the incident light—usually sending it into the lower hemisphere, where it will be most useful. But in regard to the performance of reflectors, the student must be clear on this point. Reflectors cannot increase the total output of light from a source—*i.e.*, the mean spherical candle-power or total lumens; and, although they may increase the mean hemispherical intensity by reflection, they diminish, just as with ordinary globes, the mean spherical intensity by absorption of part of the incident light. "The loss by absorption in reflectors varies very much with the construction and the material forming the reflecting surface; and the reduction effected in the mean spherical intensity due to this source of loss generally varies from 5 to 25 p.ct. of its value without a reflector, though sometimes, due to bad reflecting surfaces, this loss may amount to as much as 40 p.ct." (Dr. Bloch.) The performance of a reflector depends, of course, very greatly upon its design and on the material of which it is made; and much care should be taken to select the right type of reflector for a specific duty. Generally speaking, most requirements in the department of indoor illumination can be met by one of three types of reflectors—viz., (*a*) those which give an extensive distribution, (*b*) those which provide an intensive distribution, and (*c*) those which concentrate the light vertically downwards, exercising a focussing function (see typical photometric curves, figs. 151, 150, and 145 respectively).

Silk fabrics may be employed with considerable decorative effect for shades which can be made readily to harmonize with any existing colour scheme; and in this respect a fabric is preferable to glass, though more perishable and less convenient for permanent use on a large scale. Fabric shades are far better suited to domestic illumination than to larger installations, since they usually possess very little directive power, and commonly entail the loss of much light. Writing on this matter in "The Art of Illumination," the late Dr. Louis Bell expressed the opinion that the proportion of light cut off by such shades is generally over 50 p.ct., though the light is so much softened that the loss is not seriously felt in reading or in other occupations not taxing the eyes severely. Silk flounces, handkerchiefs, bell and balloon-shaped shades should have an underlining of white silk to promote reflection into the lower hemisphere; and as, if of thick material, deeply coloured, they occasion a considerable reduction of light, it is preferable, in the writer's opinion, to employ with them clear glass (not translucent) cylinders. Again, it is desirable that some of the light should find its way to the ceiling—there to be diffusely reflected. Therefore, flounces should either be left open at the top or else fitted with an opal disc. Bead fringes are sometimes used; but while looking very pretty, they usually fail completely to screen the mantle; and consequently it is desirable, if one wishes to eliminate bright points, that such shades should superimpose a translucent cylinder.

In practice it is found that the functions of globes, shades, and reflectors frequently merge into each other or are combined in various ways. To exemplify this, a globe, while modifying the intrinsic brilliancy of a source, often increases the mean hemispherical candle-power, because of the light which is redirected from the upper into the lower hemisphere; and a reflector, while promoting a more useful distribution of light, may effectively remove all glare—both classes, globes and reflectors, acting in some measure as shades or screens. The familiar "bank" shade (a truncated cone of opal glass, usually finished in green on the outside) acts partly as a reflector, throwing down-

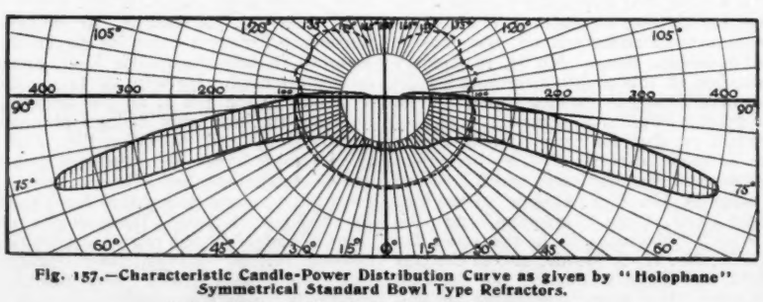


Fig. 157.—Characteristic Candle-Power Distribution Curve as given by "Holophane" Symmetrical Standard Bowl Type Refractors.
(Intended for the illumination of relatively open areas.)

wards some of the light normally radiating within the upper hemisphere, though primarily intended to act as an eye-screen. As examples of combinations of globes and reflectors, mention may be made of (*a*) shallow enamelled iron reflectors, employing frosted bulbs to shelter the mantle (as used for small local lights), and (*b*) shallow circular and hexagonal opal glass reflectors, employing partially or completely frosted globes (as used for medium and large general lighting units). Clear glass globes may be employed with either opal or enamelled iron reflectors when the lamps are hung well above the line of vision; but it is most desirable in interior lighting to eliminate glare, and during recent years there has been a growng tendency to "frost" the lower portion (half to two-thirds) of globes used in conjunction with reflectors.* With large units carrying pear-shaped globes (no reflectors) a good thing to do is to provide the globe with a frosted central band on the line of vision of the mantles, leaving clear a top band and bottom region for the purpose of providing undiminished horizontal and vertical intensities. Much more could be written about this interesting and important study of globes and reflectors; but in ending this instalment, it is hoped that enough has been said to ensure for the student salesman an elementary conception of the fundamental principles of a complex subject.

(To be continued.)

*This, of course, applies to indoor lighting.

Richmond's "Two-Point" Geyser.

Richmond's "Two-Point" geyser meets a demand arising as a result of the housing schemes and small dwellings being erected singly or in groups throughout the country. The "Two-Point" (fig. 1) provides small quantities of hot water continuously at the scullery sink for general domestic use, while sufficient water for a hot bath is available at short notice.

This geyser is usually fixed on a bracket near to the scullery sink (fig. 2). Two branch pipes are connected to the water outlet on top, one being run to the sink and fitted with a suitable tap, and the other to the bath, without any tap, where it serves not only to fill the bath with hot water, but also as an air expansion pipe which ensures perfect safety in use. The only other requisite is a good gas supply (the geyser is rated at 70,000 B.Th.U. per hour), and an efficient flue attachment. The makers are emphatic on the necessity for flue outlets on all their apparatus.

In ordinary everyday use, the tap over the sink is left fully open; and as hot water is wanted, the interlocking taps on the geyser are just turned on and off as with an ordinary bath geyser. When a bath is required, the water is turned on, the gas lighted, and the tap at the sink closed. This causes the hot water from the "Two-Point" geyser to flow upwards into the bath. A good bath usually takes ten to twelve minutes to fill with hot water; and then it is only necessary to turn off the gas and water supplies at the geyser.

The construction of the "Two-Point" is substantial and simple. The whole machine is made of hard rolled copper, with the water surfaces heavily tinned. The interior heating chamber is easily removed by releasing one bolt. Besides its simplicity and durability, the "Two-Point" has the additional advantage of being extremely low in price. Full particulars may be obtained from the makers, the Richmond Gas Stove and Meter Company, Ltd., of Warrington and London.

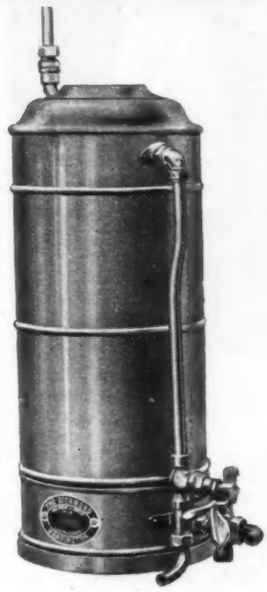


Fig. 1.

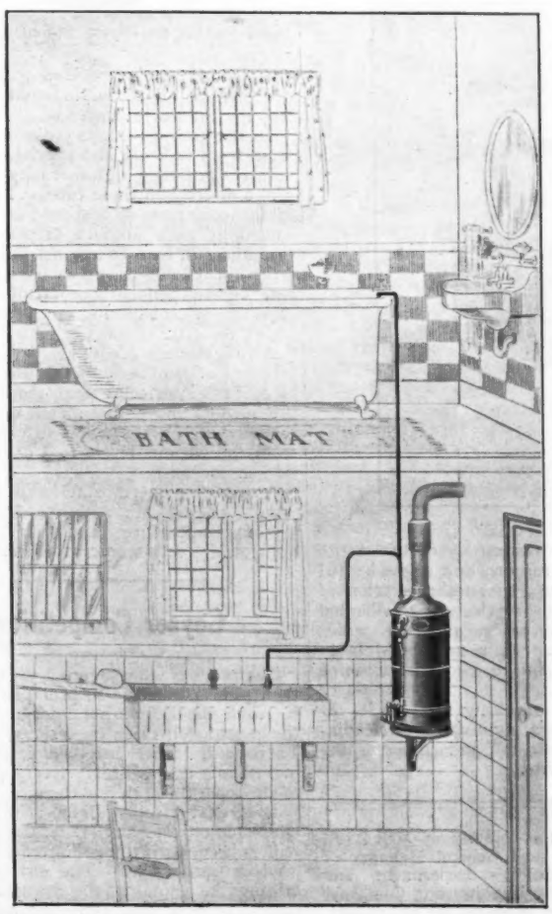


Fig. 2.

New Designs in Gas Fire Mantels.

Of particular interest to those concerned with the equipment of new houses and housing schemes is a booklet on gas-fire mantels produced by R. & A. Main.

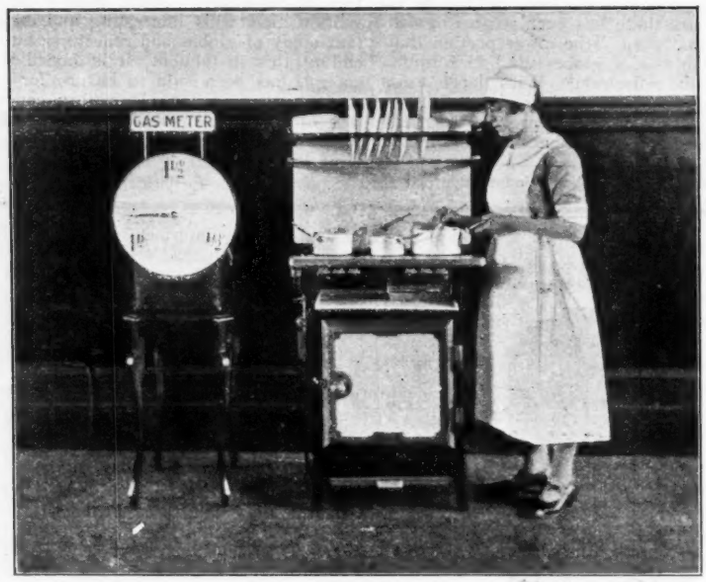
In it is illustrated a series of new designs of mantels, pleasing in their simplicity, inexpensive to instal, and excellent in their performance as heating agents. Being supplied as complete suites, comprising the fires, mantels, shelves, hearths, and curbs, these mantels cost considerably less than fires of equal efficiency with the mantels, hearths, and curbs as separate units. They are simple to fit, and can be built-in at a great saving of materials. No concrete hearth is required.

The "Ionic" Mantel.

There is a wide range of designs in the series, one of which—the "Ionic"—is illustrated. Each design can be supplied with either 5 or 7 radiant fires.

Messrs. Main will be pleased to send copies of the booklet to anyone interested.

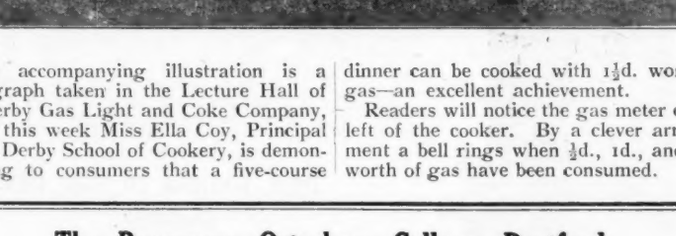
An Original Cookery Competition.



The accompanying illustration is a photograph taken in the Lecture Hall of the Derby Gas Light and Coke Company, where this week Miss Ella Coy, Principal of the Derby School of Cookery, is demonstrating to consumers that a five-course dinner can be cooked with 1½d. worth of gas—an excellent achievement.

Readers will notice the gas meter on the left of the cooker. By a clever arrangement a bell rings when ½d., 1d., and 1½d. worth of gas have been consumed.

The Bergmann Osterberg College, Dartford.



The Managers of the above College have recently reconstructed their kitchen, and installed new gas cooking apparatus to cater for about 300 persons per day. The cooking installation has been extended and remodelled by the South Suburban Gas Company, who have supplied and erected all the new plant required to form a complete equipment.

Our illustration shows the principal section of the cooking apparatus, which consists of one roasting oven, two large double-oven gas ranges, and a gas-heated fish frying range. In another section of the kitchen and service a gas-heated steamer, carving table, and tea water boilers are fixed. It is now possible to carry on the catering to the satisfaction of all concerned.

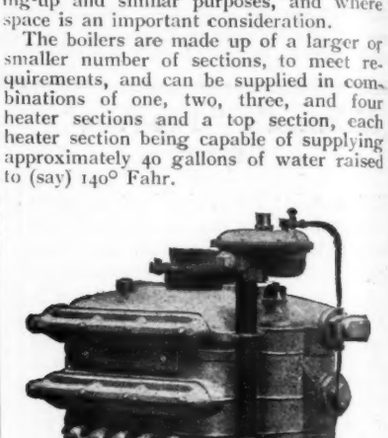
All the new cooking plant is of Fletcher, Russell's manufacture (Radiation, Ltd., Proprietors), and embodies the latest improvements.

Films of the Gas Industry.—At a meeting of the Institution of Gas Engineers on April 14, a communication from the National Gas Council on the question of the exhibition of films relating to the engineering features of the gas industry was considered; and it was reported that by the courtesy of Mr. C. S. Shapley, Engineer and General Manager of the City of Leeds Gas Department, and Messrs. West's Gas Improvement Company, it would be possible to obtain the use of such films.

"Challenge" Boilers.

The Keith-Blackman gas-fired "Challenge" boiler (for use on low-pressure gas supply) is a compact, efficient, sectional boiler, specially suitable for situations where large volumes of hot water are required, such as in restaurants, for washing-up and similar purposes, and where space is an important consideration.

The boilers are made up of a larger or smaller number of sections, to meet requirements, and can be supplied in combinations of one, two, three, and four heater sections and a top section, each heater section being capable of supplying approximately 40 gallons of water raised to (say) 140° Fahr.



Three-Section Gas-Fired "Challenge" Boiler

Each section is provided with cleaning doors which afford ample facility for cleaning the interior surfaces of all waterways.

In the heater sections cross-tubes extend from front to back, and special burners are so arranged that high-intensity flames impinge directly on these tubes. The burners and injectors are so designed as to give an unusually high amount of primary aeration and still be safe against lighting back when turned down, and each set of burners can be independently controlled, and is capable of consuming a maximum of about 100 c.ft. of gas per hour.

Arrangements are made to prevent the products of combustion from the lower sets of burners interfering with the working of the burners above, and means are provided for carrying-off the water of condensation from the various levels to a drain connection in the base.

A sensitive thermostat is usually fitted which will operate within a difference of 3° of temperature, and can be readily adjusted for any temperature desired.

Geyser Competition.

Competitors who have not yet forwarded their papers must do so promptly, in order to reach the Editor not later than one of the postal deliveries on Friday, April 30. There will be as little delay as possible in making the awards. Every paper has to be read through by each of the three judges—Mr. Horace Baldry, Mr. Samuel B. Chandler, and Mr. H. H. Creasey, who will subsequently meet together for their final determination. The envelopes containing the names of the contributors will not be opened until after the awards are made.

B.C.G.A. Gas Salesmen's Circles.

Southern District—London Area.

A Meeting of this Circle was held at 28, Grosvenor Gardens, S.W. 1. In the absence of Mr. Stephen Lacey, the chair was taken by Mr. H. H. Creasey. Manager of the Special Service Section of the Gas Light and Coke Company.

The Chairman said they would all be glad to hear that their Secretary, Mr. J. C. Walker, who, as they knew, had been seriously ill, was recovering his health, and hoped to be with them at their next meeting, which would be held on May 4.

BRANCH OR LOCAL SHOWROOMS.

By A. S Stainer, of the Gas Light and Coke Company.

This paper was prepared while I was still on the staff of the Brentford Company, which is now amalgamated with the Gas Light and Coke Company. The latter Company has, of course, a wonderful organization, and its showrooms are models perfected in every detail. My duties lie in one of the smaller showrooms in the old Brentford area, and this paper will therefore have most meaning for those employed in like places, or with smaller companies in different parts of the country.

Though much had been written on the manufacture, chemistry, and distribution of gas, little had been done until a few years ago to assist the showroom staff. The knowledge they acquired was usually assimilated through being more or less in touch with the subject, and from makers' catalogues. The more studious may perhaps have taken various technical papers, or acquired their knowledge from text books. Happily, this attitude has changed, though there is still room for improvement. Some companies have not yet realized the importance of properly fitted showrooms; others have them, but do not use them.

Of course, we all know that the primary object of a gas company is to manufacture gas; but surely it is also their duty to supply the best advice and the best appliances. To-day is the age of efficiency and cleanliness; and the old-fashioned appliances of yesterday are being superseded by the more scientific apparatus of to-day. Gas for all purposes is becoming more widely used.

Gas undertakings must have real live showrooms, staffed by trained men. In my opinion, the showroom ought to be one of the landmarks of the town, dignified but homely, and with a welcome invitation to the most timid visitor. The average showroom is not large enough to exhibit the numerous gas appliances to the best advantage, and in some cases is insufficiently staffed. It is interesting to note in this respect that a movement advocated some time ago by the "B.C.G.A." for the training and educative advancement of young salesmen is already bearing fruit.

Window blinds are unnecessary. Let your goods be on show night and day. Gas stoves will not fade; and more sales have resulted from a glance in a window on a Saturday or Sunday afternoon's walk than is generally realized. The showroom—window included—should always have a tidy and fresh appearance. Entering, we should see at least one of every kind of apparatus, fixed as it would be when in general use. This is essential, as it makes it simpler for the attendant to explain, and for the customer to follow. It is not good business to give a leaflet to a customer inquiring for a circulator, and show him the article in a medley of gasfittings.

Gas fires should be prominent, and always in a good working condition, never displaying dirty or broken fuel. A flexible tube cock should always be handy for connecting rings, grillers, and hotplates. By this I do not mean a cock with a brass nozzle for rubber end connections, but one with a wing union nut, suitable for flexible tubing with light brass ends. The gas iron (of which little is known by the general public) is always worthy of demonstration; also the coal fire lighter or poker burner—an appliance of which the value has not yet been realized. The chief demand in the cooking line is for a stove on a stand, and with a plate-rack and enamelled back. All stoves should be raised from the ground by an enamelled stand, and this should be included in the hire. I think fewer people would require their cookers exchanged if this were done.

Maintenance of appliances in the showrooms is of great importance. Pendants and brackets can be kept fresh by the occasional application of an oily cloth. The burners should be cleaned and adjusted every week, and any deposits on the outside removed. Globes should be washed with warm soapy water. Comparison between a globe thoroughly washed and one carelessly cleaned shows after six months' use the advantage to be gained by the former method. The latter globe is generally of a pale brown appearance.

Proper attention to cleaning of globes is more necessary with the new Vitreosil ware, as this seems to absorb the heat and smoke more so than ordinary glass globes. The bowls and reflectors of semi-indirect fittings also call for special attention if the efficiency of the light is to be maintained; and I find that a little "Scourine" (which is a kind of soap powder) on a damp swab is the best means of keeping these in perfect condition. Silk shades are excellent when fresh and new; but it is better to have no shade at all than one faded or shabby. The same remark applies to showcards. See that these are spotless.

Matches or tapers strewn about by careless attendants, or cigarette ends thrown into the fireplace by the public can be remedied by placing ash trays in convenient places. It is then possible to convince your customer, without fear of criticism, that the home is tidier and cleaner when gas is used.

Perhaps no other branch of the industry has suffered so much in the past from public prejudice as gas heating. From the numbers of fires that the various undertakings have sent out during the last two seasons, both on hire and purchase, it appears that the powers that be in our industry have at last got over the barriers, and have established the advantages of the gas fire over other methods of heating. The usual excuse in favour of a coal fire seems to be the need for something to poke and the erroneous impression that gas costs more. These answer for themselves.

The general duties of the staff are more numerous at a branch showroom, where they deal with all matters, including the payment of accounts, counter work, &c., than in the showroom at the head office or works, where the work is departmentalized.

It is essential, of course, not only to be in direct communication with the chief office, but to be able to get through without delay to the various departments. Nothing is more annoying to the customer than to be kept waiting while inquiries are being made It is always more satisfactory to the consumer if the matter is settled without reference to the chief office for someone else's attendance. Of course, such matters as disputed accounts and quotations, &c., are beyond the duties of the showroom staff, and must be referred to the district inspector.

The work is facilitated when the showroom and depot are together, and can work in conjunction. Queries can be settled, and estimates or other appointments made immediately when the foreman and district staff are at hand. This saves postal delays. A properly-conducted showroom must lighten the burden of all departments, especially the inspectors'.

The showroom should carry a sufficient stock of fittings, burners, globes, rings, and sundries for immediate delivery, while the larger appliances such as stoves, geysers, boilers, &c., should be supplied from the chief depot or issue department, where a large reserve stock should be ready for dispatch at short notice. The attendant should see that he does not take an order for anything unless it is in stock, or delivery can be promised within a reasonable time. In cases where special appliances have to be ordered from the makers, the customer should be told that no definite promise can be given for delivery. This avoids unnecessary future calls or correspondence on the matter. Daily co-ordination between the chief stores or issue department and the showroom regarding appliances on hire is necessary for successful business.

After the good work done by the "B.G.C.A." and some of the leading stove makers through the medium of the Press, the showroom should be the chief advertising medium of the gas undertaking. The goods should be set out artistically, and not crowded or lined up like a section of recruits. Appliances should be in working condition, and complete. Nothing is more annoying and detrimental to the sale than to find that the burner "lights back" or that a part has been borrowed.

To create a desire in the mind of the public to purchase our goods, it is necessary to arouse their interest or curiosity from the outside, by means of our window displays. I do not intend to dwell on this particular subject, as it has been dealt with so often of late; but in passing I would like to voice my opinion that the window should be changed every fortnight, and the same articles should not appear on two successive occasions. One or two specialities are better than an assortment. The hotplates and grillers must not be covered with tin kettles and pots—one or two here and there on a stove enhance the appearance; but if one is put on every burner, you are covering the apparatus you are trying to sell.

The showroom of to-day, and more especially of the future, is and will be a very important department of the gas undertakings. After all, it is not like any ordinary store, where a purchaser comes to-day and is not seen again. The first visit to a gas showroom is perhaps the beginning of years of association. The impression made by the company's repre-

sentative on that occasion is one made for the company.

It is surely essential then that the staff should be efficient, not only in manners, but in the knowledge of the great industry of which they constitute one of the necessary units. The attendant should make practical experiments, and obtain a wider view of the gas industry, by becoming a member of some gas association which enables him to visit other companies' showrooms and works.

In conclusion, I would say that a little time after business hours occasionally devoted to any of the subjects appertaining to the industry is not wasted. Remember, "knowledge is power."

Discussion.

The Chairman observed that it was perhaps too much to say that the showrooms of the Gas Light and Coke Company—or, for that matter, those of any other gas undertaking—were perfect in every detail. Great progress had been made, however, since the days when apparatus was displayed without care. Mr. Stainer had suggested that the gas showrooms should be a landmark of the town. The Gas Light and Coke Company had endeavoured to put this ideal into practice, and had tried to create local interest in their efforts. The general effect of a showroom was not dependent on size, for even a small showroom could be made attractive. Mr. Creasey remarked that an interesting point which could be discussed with advantage was whether it was preferable to have what he would term "open" windows, rather than closed window displays. The question of maintenance of apparatus had been touched upon by Mr. Stainer. Well, no one would disagree with him (the speaker) that, even though no maintenance system was in operation on the district, all fittings and appliances exhibited in the showroom should be maintained in a clean and highly efficient condition. The author had referred to the competition of coal in the heating field. Regarding this, Mr. Creasey suggested that members of the Circle should study a paper on "Domestic Heating" read by Dr. Margaret Fishenden at a meeting of the Royal Society of Arts on Feb. 24 last (see "Gas Journal" for March 3). In the course of the discussion, perhaps the question of changing the window displays would be considered.

Mr. E. L. Oughton (South Suburban) said that when he was in the North of England they alternated their method of window dressing, so that at one time there would be closed displays, while at others the windows would be open and the effect would be gained by the general lay-out of the apparatus in the showroom itself. He thought that at present there was a tendency to make gas showrooms too palatial. After all, how many gas consumers possessed oak-panelled rooms? Not a large percentage, he thought. There ought to be sections in the showrooms where apparatus could be seen fitted in ordinary rooms having a homely atmosphere. The gas industry owed its prosperity in the main to the small consumer, who should be made to feel that his custom was valued, and should certainly not be overawed by too much grandeur. As to the necessity for frequent changes of the window displays, if there was no change it would soon be discovered that people would cease to take any interest in the exhibits. By this time people knew the shape of a gas fire or a gas cooker; and unless such appliances were demonstrated in novel and attractive manner, gas undertaking would not reap the full benefit of their showrooms. Mr. Oughton remarked that showrooms either made or marred the reputation of a gas concern. They constituted the connecting link between the undertaking and its customers; and consequently it was essential that all who visited them should be treated with courtesy, and their troubles solved efficiently. The organization should be such that the showroom manager was able to tell consumers definitely when apparatus could be fixed. In this connection, there was a tendency to deal with every order in strict rotation, irrespective of the urgency of one order compared with another. This, he thought, was not good policy.

The Chairman fully agreed that appliances should be shown in an attractive manner. Whatever the size of the displays, they should be in good taste.

Mr. H. S. Meade (Gas Light and Coke Company) put forward the view that many customers did not enter showrooms unless they knew the prices of the appliances they required. It was perhaps a case of timidity; but however that might be, there was no question that a considerable proportion bought, as he would term it, "from the window." And because of this, he thought that the closed display was to be preferred to the open window. With the latter it was impossible to have special exhibits; and these were often most successful. He remembered a display of sulphate of ammonia, for example, which during its run resulted in an increase of 500 p.ct. in the sales of sulphate.

Mr. F. Holland (North Middlesex) suggested that insufficient stress had been laid on the need for efficient salesmen; and in mentioning this, he would say that he preferred the title "salesman" to that of showroom attendant. Mr. Stainer had stated that appliances should not be lined up. This, of course, was desirable; but it was hard to carry out unless the showroom was a large one. As for the changing of window displays, there was really no definite optimum period for any particular exhibit. It depended on the selling power of the display; and many exhibits could be left with advantage for as long as three weeks. He favoured closed windows rather than those of the open type. It was essential that salesmen should be able to tell consumers when the appliances they ordered could be fixed.

Mr. Sumner (Pinner) said that no hard and fast rule could be laid down for the design of showrooms or for the method of displaying the different appliances. Everything depended on local conditions. He thought it desirable to have only well-finished and neatly-designed apparatus in the windows. If clumsy fittings were demonstrated, the electricity industry would reap the advantage. Salesmen in gas showrooms should not use matches. If the appliances were not switch controlled, flint lighters should be employed.

Mr. J. Privett (Portsmouth) remarked that, whatever the size of the showrooms, they could be made attractive. Cleanliness was essential. In connection with gas irons, an effective display could be arranged by connecting the iron to a gas supply, and having a small ironing board, so that consumers could actually try the apparatus. Such demonstrations had proved highly successful in Portsmouth. It should be made impossible for salesmen to book orders for appliances which were out of stock. Information as to the stock should be given to them daily, and they should also be informed of what was entering the stores, and what was being dispatched. As for the time of fixing, the showroom staff should be in close touch with the fitting department, as was the case at Portsmouth. There was no need to display a medley of appliances. If too many were shown, people did not stop to look at them. If the showroom window was small, it was better to show one cooker well than a large number badly. Mr. Privett said he was in favour of closed windows. Prepayment consumers did not often visit the showrooms, and there was no doubt that—as Mr. Meade had suggested—they bought from the window. In displays, therefore, it was necessary to consider this class of customer, so valuable to gas undertakings. He reminded members of the Circle that display associations existed, and remarked that his membership of the Portsmouth Display Association had been of great benefit to him.

Mr. F. O. Medcalf (Gas Light and Coke Company) said that it was difficult to discuss a general paper on showrooms, for the simple reason that every man was apt to look at the question from the point of view of his own district, which was influenced, of course, by local circumstances and conditions. Some of those who joined in the discussion looked at the problem from the viewpoint of a member of a large showroom staff. Others put forward their opinions based on their experience gained while managing a small showroom single-handed. It was thus difficult to come to any conclusion as to what was right and what was wrong. He thought the Committee of the Circle would be well advised if they arranged for the next paper on the subject to be given at the showroom on which the paper was based. In such circumstances discussion should be fruitful. Small showrooms should exhibit at least one example of each type of apparatus; the space determining the number shown. He agreed with the author that blinds were unnecessary; but it was desirable to keep the windows lighted after business hours. One of the most important needs of the gas showroom was plenty of wall space, either natural or artificial. As an example of what he termed artificial wall space, he mentioned the divisions used for exhibiting cookers and other appliances to the best advantage. It was desirable to classify apparatus as much as possible, and not to mix (say) cookers and water heaters.

Mr. G. S. Gadsby (Gas Light and Coke Company) favoured closed display, and thought it was a mistake to have open windows.

Mr. F. Ford (Gas Light and Coke Company) emphasized the need for having a technically-trained staff for the showroom, and queried whether at present salesmen were given sufficient opportunity of knowing thoroughly the capabilities and performance of different appliances. It was necessary, for instance, to give accurate answers to such queries as how long it took to boil the water in a gas wash-copper; and this was often difficult, as the information was not supplied to them, and they had not sufficient time in which to make tests for themselves. Showrooms should certainly be lighted after business hours.

Mr. J. H. Johnson (Hampton Court) said that whether a showroom was small or large, it should invariably be comfortable. He was of opinion that the positions of apparatus inside the showrooms were not changed as frequently as they should be. There was a tendency for gas showrooms to become too stiff and formal, and not sufficiently alive.

Mr. Stainer, in reply, said that he was in favour of the closed window, for it was difficult to effect any change with the open window. From his experience separate windows were more attractive than a view into the showroom. He had tried Mr. Privett's suggestion regarding the display of gas irons, and had found it very successful. As for Mr. Medcalf's point that the next paper on showrooms could with advantage be read at the showroom to which it particularly applied, this was excellent.

A vote of thanks to the author, proposed by the Chairman, brought the meeting to a close.

The next meeting will be held at 28, Grosvenor Gardens, on Tuesday, May 4, when Mr. H. S. Meade, of the Gas Light and Coke Company, will read a paper entitled "The Daily Round."

Industrial Circle in Glasgow.

A conference of the Industrial Gas Salesmen's Circle is being held in Glasgow today. An instructive time will be spent; for a very attractive programme is before the members. They will inspect many types of industrial gas appliances that are in use in the city, will hear and discuss a paper by Mr. J. McIsaac on "The Application of Town Gas for Industrial Heating," and will visit the celebrated biscuit works of Messrs. Macfarlane Lang and the Albion Motor Car Works.

Fairy Gas Competition, 1926.

In addition to the usual £100 cash prizes offered in connection with the above competition this year, and for the past ten years, there will this year be offered an additional sum of £50 to be awarded as the first prize in the essay section of the competition in the form of a scholarship, to be known as the "B.C.G.A. Fairy Gas Scholarship." All children who compete in this essay section will be eligible for the scholarship, which will take the form of a grant-in-aid of education, the term "education" to be interpreted in its widest sense. The Committee will consider, in consultation with the parents of the child, how the money shall be disbursed.

Southern District—Sub-Section "A."

A Meeting of the Circle was held at the Showrooms of the Aldershot Gas, Water, and District Lighting Company, Farnborough, on Monday, March 8—Mr. C. J. EVES presiding.

THE DRY GAS METER.

By J. BERRY, Manager of Messrs. J. & J. Braddock's Oldham Works.

Details of the construction of dry meters were fully explained by the lecturer; each point being easily followed by the use of a demonstration meter and parts. The care with which makers have to select materials, particularly with regard to the diaphragm and the valve grids and covers, was emphasized. The valve grids and covers are manufactured from a special alloy which enables them to be polished to a glass-like finish, to ensure satisfactory working. Each part is made by special machinery, eliminating the human element as much as possible. A vital point in connection with the valve plate is that the under fittings have to be double-lipped, to enable them to withstand damage from condensation.

The diaphragms are made from Persian sheepskins, and the greatest care is exercised in purchasing. A reason for specially strict supervision lies in the fact that a five years' guarantee is given with meters, and the diaphragms are subject to a large amount of wear. Defects in skins are often not apparent until they have undergone the curing process. This consists of immersing the skins in pure almond oil at a certain temperature, afterwards hanging them for six weeks to six months, according to the season. A number of faulty diaphragms were displayed. The only use for the defects, continued the lecturer, is as washers. The seamless diaphragm is undoubtedly best, but is costly, owing to the few which can be produced from each skin. The stuffing boxes call for special consideration. Vaporizing results in the removal of the substance from the wool in the boxes, causing them to leak. Mr. Berry stated he is now engaged on finding a remedy for this trouble. A substance has been found, he said, which will be unaffected by vaporizing.

After a number of other points of minor importance had been explained, Mr. Berry referred to the standard meters, and said that these undoubtedly gave excellent service.

The CHAIRMAN congratulated Mr. Berry on the excellent way in which he had dealt with his subject. He asked whether leakage at the index glass would be registered.

Mr. BERRY replied that leakage at the index glass might be partly or wholly registered. Replying to the Chairman, Mr. Berry explained that a split diaphragm would result in registration only of the amount of gas passed by the split.

Mr. TUCKER (Wokingham) asked how meters which were only tested at ½ in. to 3 in. pressure before being put on the market would stand heavy district pressures of 10 in. or so.

Mr. BERRY remarked that the meter would suffer no strain, owing to the perfect running of its mechanism.

Mr. H. Cox (Aldershot) inquired what would be the effect of an abnormal amount of condensable matter on the registration of the meter.

Mr. BERRY said that there would be a tendency to register slow.

Mr. CULLINGTON (Woking) raised the question of meters failing to open at the first penny. Was full value given for all payments?

Mr. BERRY, in a lengthy explanation, showed that a certain amount of backlash had to be overcome by the mechanism, and this sometimes caused an insufficient movement of the valves at the first penny. Subsequent coins gained full value in gas, owing to backlash having been overcome by the first coin.

The CHAIRMAN thanked Mr. Berry for his lecture. All had gained useful information.

Mr. BERRY briefly replied.

Mr. BRADDOCK, Jun., remarked that the makers were always ready to be of assistance to all connected with the industry.

Southern District—Sub-Section "B."

The April meeting was held at Portsmouth, when five-minute papers were given by members of the Committee.

GAS COOKER AND COKE-BOILER.

Mr. H. T. MILLER, of Winchester, said: The ever-increasing number of independent, coke-heated domestic boilers now being fixed in all districts for the purpose of providing an adequate supply of hot water for the average household is, I consider, worthy of our attention, with a view to ascertaining whether the coke boiler will prove an asset or otherwise in promoting the use of gas as a cooking and heating agent. Where circumstances permit the expense of the installation, the gas cooker-coke boiler combination is a sound proposition. We may rightly consider gas as being a source of concentrated units of heat which can be used economically with the greatest of ease up to a certain point of consumption. If, however, the amount consumed exceeds the purchaser's limit of economical expenditure, it may create dissatisfaction with the consumer, and thereby retard its selling powers as being the most economical of fuels. This is where the coke-heated boiler takes up the service, and justifies its installation as an ally to gas cooking, by providing an abundant supply of heated water with smokeless fuel at a cost lower than any other form of fuel. I do not approve the effort of ambitious designers who seek to embody extended hotplates for cooking, and open firefronts for room warming, to the detriment of the hot water supply, and with an increasing fuel consumption. By so doing, the makers are reverting to principles too closely allied to the coal-fired kitchen range, with its attendant extravagance and discomfort.

CARD SYSTEM FOR FITTING WORK.

Mr. F. C. COLEBROOK, of Andover, gave information regarding a card system they are creating at Andover, where one card is used for all classes of fitting work—all cards being based on entries in the order and complaint book kept at the showrooms. At the end of the day all work that has come in during the day is put on the cards by a typewriter. The cards are taken to the works office next morning, when they are issued to the fitters. Each fitter carries a wallet in which all cards are kept. The cards are delivered at the office in the evening, except in the case of uncompleted work, in which case they are dated, and kept at the works until several accumulate. They are then priced, dealt with by the Manager, and returned to the showroom and written-off the order book. All apparatus is posted to meter, cooker, and fire stock books. Charges are posted, the fitters' report is made out, and the cards are filed away in numerical order in drawers. We are thus able to keep our fingers on the jobs, as by the number of cards uncompleted we are able to see at a glance what work is outstanding. The job card number is carried right through to the ledger, so we can easily turn up the card should a query arise.

Mr. Colebrook concluded by saying that, though their card system was at present not fully completed, it was proving satisfactory, as it was based upon their everyday working experience.

SERVICE AND SALES.

Mr. H. J. TYLER, of Chichester, said: We hear a lot about service in these days. We speak of the "service" department, meaning thereby to embrace the sales department. The change in attitude which this entails is denoted in our better attention to public requirements, and further by the live messages we endeavour to convey to the public by the improved arrangement of our showroom displays. To get a true perspective of the position as it concerns us to-day, we must carry our minds back to the time when the slogan "business is business" too often lost sight of the human element, and the words conveyed a flavour that transactions were not altogether honourable, or, to put it bluntly, profit, and not service, seemed to be the sole aim. While we must remember that new customers are necessary, we must never overlook the fact that the old consumer must be retained. Our ambition should be that every sale should give such satisfaction that it opens the way to the next. To-day the accepted practice is to consider transactions in their mutual aspect, customers showing evident pleasure in their purchases largely because of the confidence born of service, a square deal, and sound advice, while the salesman is as keenly pleased because of the impression for good he has created. "Sales through Service" is a sound motto.

GAS *v.* ELECTRICITY.

Mr. F. H. WAKELING, of Chichester, gave his experience of how he overcame some difficulties encountered in connection with obtaining permission to lay a main in a by-road. After the main had been laid, however, successful business was obtained against electrical competition.

Mr. W. FAULKNER, of Romsey, contributed a humorous five-minute paper on some of the experiences of their representatives on the district.

"PERFECTEA" BOILER, "B" TYPE.

Mr. W. H. MEITINER, of Southampton, gave the result of some tests he had made in connection with a Radiation "Perfectea" boiler, "B" type. Starting all cold (48° Fahr.), boiling water began to run in 6½ mins., 1 gal. in 8 mins., then boiling water continuously at the rate of 1 gal. every 1½ mins. Gas pressure 45-tenths, gas rate per hour 135 c.ft. Rate per gallon when hot, 3·4 c.ft. (3·375). Gas per hour required to maintain boil, 14 c.ft. With a stand-by consumption per hour of 10 c.ft. (maintains water just under boil) full flow of boiling water in 50 seconds; with higher stand-by consumption rate, full flow comes quicker, but whether it is worth the extra consumption depends upon the kind of business done. It is, said Mr. Meitiner, the best quick-boiling kettle I have encountered. First gallon took 18 c.ft., next 5 gals. at 3·4 = 17 c.ft.; total for 6 gals., 35 c.ft. = under 6 c.ft. per gal. starting from cold. B.Th.U. utilized on 460 gas = 281·143, or 61·11 p.ct. The machine is constructed of heavy rolled-sheet copper, with water surfaces well tinned. Metal used is heavy gauge. It is the simplest boiler to take apart for cleaning I have handled. Mr. Meitiner thought the combined copper and dish-washer a good idea.

South Wales and Monmouthshire Circle.

A Meeting of the Circle was held at the offices of the Cardiff Gas Light and Coke Company on Thursday, March 25—the President of the Circle, Mr. David Muir, of Pontypridd, presiding.

Mr. B. J. BELL (Cardiff), the Secretary of the Circle, tendered his resignation on account of pressure of business. This was accepted with deep regret, and a vote of thanks was accorded Mr. Bell for his valuable work since the inception of the Circle.

Upon the motion of Mr. BELL, seconded by Mr. S. SNOW (Cardiff), Mr. R. J. Williams (Abertillery) was elected Secretary.

WASH-BOILERS.

By J. PARKINSON, Sales Representative of Messrs. W. H. Dean & Sons, Ltd., of Burnley.

Condensation.—Some time ago I went to Rhubina to inspect a wash-boiler which was reported leaking, and found the trouble was due to condensation. To bring this to an absolute minimum, I recommend the following method: About two gallons of water should be put into the pan at the commencement, and the gas turned on at half cock. Then; when everything is nicely warm, fill up to the desired quantity.

Cleanliness.—The boiler, after having been used, should not be allowed to stand containing dirty water. The soaps which are used to-day are more dangerous than they used to be, and some of them contain chemicals such as caustic, and a good percentage of sodium carbonate. These, if allowed to stand in the pan, attack the tinning, with the formation of a greasy deposit. The result is that when the water is emptied out, and the pan is not cleaned, at the next time of washing the deposit marks the clothes, and the boiler is alleged faulty, while the real fault is negligence.

Washing Materials.—Fatty soaps should be used as much as possible, such as "Sunlight" or "Matchless Cleanser." These do not contain any injurious chemicals as do some powder soaps that are supposed to "do the work while you sleep." You can rest assured that they do not wash the clothes, but simply bleach them. When you bleach garments, you are shortening their life, and also injuring the copper pan. Every time the boiler is used it should be thoroughly cleaned out, and all the scum, dirt, &c., from the day's washing should be wiped from the side of the pan, like every other domestic article. Many people are under the impression that a wash-boiler should never be wiped out; but I can assure you that it is most important. Among the dry powder soaps, "Rinso" is the best.

Gas Consumption.—With regard to the gas necessary to raise the temperature of the water from cold to boiling-point, the amount depends, of course, upon the calorific value. The higher the calorific value, the less the quantity required. As an example, take Burnley gas, 475 B.Th.U. In all our tests we only use 7 gallons (allowing for displacement of the clothes); and to boil this quantity it takes from 38 to 40 minutes, while the gas is consumed at a rate of 60 c.ft. per hour, which is approximately 30 to 40 c.ft. for the test. This you can easily work out according to the cost of gas. Burnley is approximately 3s. 4d. per 1000 c.ft. Therefore the cost of 38 c.ft. is just over 1½d. Roughly speaking, a boiler is used on washing day from 2 to 3 hours; and if you base the calculations on three hours, you can wash comfortably for a family of five or six at a cost of 5d. to 6d.

Careful consumers who turn the gas low when the water comes to a boil can keep the water boiling at 7 to 10 c.ft. per hour. Thus their gas bill is much reduced.

Packed Boiler v. Protector Plate.—In order to compare the performances of these two boilers, some time ago we made up a special boiler with extraordinarily thick packing. This boiler (which was purely experimental, and was broken up afterwards) had 1½ in. of packing round it, and was tested against our ordinary No. 2C. After standing 10 hours in the same room with their lids closed, under exactly the same conditions, the packed one was at 106° and the unpacked one at 102° Fahr. You will thus readily agree there is nothing to discuss in this direction.

Messrs. Dean & Sons, Ltd., recently received a suggestion from a firm of builders' merchants that a silica cotton packed boiler would be more efficient than a single-cased boiler fitted with protector plate. In view of this another comparative test was made—this time using a packed boiler with 1¼ in. packing. As the following letter addressed to the builders' merchants will indicate, the result was identical with the 1½ in. packing test, and proves that there is not enough difference to justify the packing:

> In the first place, we have made the type of boiler you suggest in your letter for over twenty years, and we were one of the first to use silicate cotton (or slag wool), as previous to this we packed the cavity with river sand. In fact, we have a repair boiler in the works now which left our place, and has been in use for twenty years.
>
> We have not pushed forward this boiler for several reasons. Silicate cotton does not mend the efficiency of the gas, nor does it prevent the outside casing from getting hotter. Comparing a silicate cotton packed boiler with our No. 2C pattern (fitted with protector plate), the efficiency as regards time to boil, and the consumption of gas, are the same in both cases. In fact, if there is any advantage (that is, going into every detail), our No. 2C as mentioned above claims this item, the difference being the outside casing. Our No. 2C gets hot quicker (in other words, in the first 10 or 15 minutes it is as hot as it can possibly be during the whole time the boiler is being used), whereas the silicate cotton packed boiler casing heats up according to the temperature of the water, and when both boilers are at boiling point the local areas round the gas rings are exactly the same in both cases.
>
> We have been making very severe tests during the last seven to ten days, and the silicate cotton packed boiler used is a special one made for the occasion, having a cavity 1¼ in. wide all the way round crammed with silicate cotton in order to give it a proper test. You will agree it is a very severe test, so that any advantage could be given to the packed design.
>
> After these two boilers had been on test, both containing 7 gallons of water, the gas was turned off, the water being at boiling point. They then stood for ten hours; the result being that the water in the packed boiler was 106° and in the No. 2C 102°.
>
> The writer will agree with you that in theory it should be a great advantage. In practice and in actual use from day to day, the results are as given above.

Complaints.—At the beginning of this month I had a complaint about the steam coming out between the pan and the cast-iron ring. This is sometimes caused by putting too much water into the copper; and it must be an exceptionally tight lid if the steam forces itself between the pan and the casing. In fact, I think it is an absurd complaint.

I recently investigated another complaint where a wash-boiler user complained of a discoloured lid. I inquired if the boiler was thoroughly cleaned after using, and was assured that it was, but upon passing a finger over the surface I found that the deposit was easily removed. On further inquiry it was found that the boiler was rubbed over after being allowed to cool. Boilers should be wiped out when hot, and the lid left open, for in addition to the effectiveness of this method, when the boiler is left to cool the wiping is sometimes forgotten.

Construction.—A good copper pan should be constructed with 20 W.G. bottom, 22 W.G. side, and virgin tinned after manufacture. Hinges should be copper and the screws brass. This type of boiler should last 20 to 25 years.

It is essential that boilers for butchers, tripe and fat boilers, &c., should have cast-iron pans, and not copper, because of the high temperatures attained in boiling fats.

In summer time, when coal fires are not needed, many housewives use their wash-boilers daily to get hot water for washing-up purposes, baths, &c. I have been told that some of them put their boilers on at 9.30 a.m. When the water boils, they turn down the gas until 1.30 p.m., when the gas is turned off and the lid kept closed. In this way they have hot water for the rest of the day to wash-up the dinner, tea, and supper things, and even have enough hot water left to have a bath at 11 p.m. The whole cost has not been more than 4d. to 6d.—and without dirt or worry!

Discussion.

Mr. H. LAW (Cardiff) inquired whether the steam vent into the flue was not more desirable than a copper condenser as fitted to many boilers.

Mr. T. GARLAND stated that many consumers showed a preference for the wood top, and asked the author what the manufacturers' experience was. Mr. Garland also raised the question of the effect of water in various districts upon the interior of the copper pan.

Mr. A. W. STICKLER considered that the condensers fitted to wash-boilers were not large enough to condense the whole of the steam, with the result that a portion came under the lid into the room.

Mr. PARKINSON, in reply to the question by Mr. Law, stated that the steam vent should be fitted with an adjustable damper, as shown by their No. 1 pattern in their catalogue. Then, providing the damper was closed when the gas was shut off, the water in the steam vent type would retain its heat as long as would the condenser pattern. He had known some cases where wash-boilers had no flues fitted, the products of combustion being allowed to discharge into the scullery. In these instances, he recommended the condenser boiler, which reduced the amount of moisture discharging into the room. Boilers should always be fitted with flue pipes to carry away the products of combustion, for, in addition to the fact that these products should be conducted outside the building, it sometimes happened that, where no pipe was fitted, the flue nozzle became choked with dust and litter. With regard to the preference for wood tops, the speaker found that different types were required by different districts. The question of hard water did not affect the South Wales district, where the water was soft; but in the Weston-super-Mare district, where the water was hard, a fur was formed after eighteen months. In reply to Mr. Stickler, the speaker thought that no inconvenience would be caused unless the water was boiling at an excessive rate.

Mr. T. GARLAND proposed a vote of thanks to Mr. Parkinson for his address; and this was seconded by Mr. BELL.

Mr. R. J. WILLIAMS moved a vote of thanks to Mr. H. D. Madden and the Directors of the Cardiff Gas Light and Coke Company for their generosity in providing accommodation and refreshments. This was seconded by Mr. SEAGER (Aberdare), and supported by Mr. JONES (Neath).

The Governor of the Gas Light and Coke Company states that a Special Committee has found that, for equal service under practical conditions, cooking by electricity at 1d. per unit costs three times as much as cooking by gas at 8d. per therm.

Lancashire District—Manchester Section.

A Meeting of this Circle was held on March 24 at Manchester. In the absence of the Chairman (Mr. J. H. Sillitoe), the chair was occupied by the Vice-Chairman (Mr. P. H. Christian, Southport).

GAS WATER HEATERS.

By Adian St. Leger (Radiation, Ltd.).

The gas water heating business is yet in its infancy. The field is so comprehensive, and the possibilities so vast, that everyone should endeavour to qualify as an expert. It is said that "success comes with knowledge;" and the salesman should know as much as possible about the commodity he sells.

There is a gas water heater for every home, and the task before us is to sell to every home its proper heater. This requires determination, enthusiasm, patience, diplomacy, and general knowledge. There is, of course, the question of costs; but in this connection it should be remembered that gas gives superior service. After all, the fact that a Ford motor-car is cheap does not prevent or even hinder the sale of Rolls-Royce cars.

The larger the house, generally speaking, the wealthier is the man who owns it; and the wealthier the owner is, the prompter the service he requires. Gas water heating appliances are capable of giving the best service; and yet in many cases no effort is made to get the business, because coal is said to be more economical.

Mr. St. Leger, by means of actual appliances and detailed drawings, then described the construction of practically all the gas water heaters in common use, bringing out the features of each and the advantages of the particular designs for special purposes. He enumerated the principles upon which an ideal heater should be constructed, and then went on to consider the installation of the various types of gas water heaters.

The address gave rise to an interesting discussion. The principal point raised was intercirculation between the kitchen range and gas circulators. This trouble is frequent; and the author, after explaining the remedy, mentioned the books which are issued dealing thoroughly with the subject. The makers, he said, take particular care to stress the correct way of fixing gas circulators. Instruction cards are sent out with every appliance. Mr. I. Humphries, of Salford, asked whether lagging had any useful effect, and whether the saving warranted the extra cost. In the reply, it was urged that all hot water installations should be thoroughly lagged. Mr. H. E. Jackson, of Stretford, asked whether radiators could be heated successfully by gas circulators; and it was pointed out that these appliances are being used extensively for small heating installations, especially in banks and other offices, where the cost is not considered so much as the general convenience and cleanliness of gas.

A vote of thanks to Mr. St. Leger, proposed by Mr. J. Rennie (Oldham), and seconded by Mr. V. Severs (Salford), terminated the meeting.

West Riding of Yorkshire Circle.

A Meeting of this Circle was held on Wednesday, March 17, in the Crown Court at the Leeds Town Hall—Mr. C. Watson (York) presiding over a good attendance. The Engineers of the Bingley, Drighlington, and Otley undertakings were present.

The Chairman said they were fortunate in being able to hold their meeting again in the Town Hall; and their thanks were due to Mr. C. S. Shapley, Engineer and General Manager of the Leeds Corporation Gas Department, and to the authorities concerned.

SHOWROOM PRACTICE.

By P. Shepherd, of the Leeds Gas Department.

Showroom practice is a subject with which most of you are more or less acquainted, but I hope it will be of interest to all if I give a résumé of the methods adopted in our showrooms.

All will agree that a showroom is a necessity to any gas undertaking. In support of this, the remarks of Mr. Milne Watson at the recent general meeting of the Gas Light and Coke Company, on the importance of good showrooms, are worth repeating. He said:

> During the year some criticism has reached me with regard to the Company's policy in connection with showrooms. I have been told that some people wonder whether this is wise expenditure. With regard to this there can be no possible doubt. In these days when we have electricity knocking at our door, it is absolutely essential that it should be clearly demonstrated that gas can be used not only efficiently, but artistically. Being an old industry, it is apt to be assumed that it is not adaptable to modern conditions; and the only way to combat this idea is to show actually what can be done in this respect. There is no expenditure more desirable and imperative than expenditure on showrooms.

It is through the showroom staff that the public can be educated in the enormous uses of gas. They are the mouthpiece of the undertaking. Showrooms may be termed a place where the goodwill of the consumer can be established or lost; and it is this goodwill that means increased consumers and further sales. Goodwill is a most valuable asset. No matter whether a customer enters a showroom to place an order or to make a complaint, civility should prevail under the strongest provocation. Those of you who are employed in showrooms will appreciate how difficult it is, when an irate consumer enters the showroom, to place the necessary guard upon the tongue. In dealing with the most trifling complaint, let the consumer see that you are taking a personal interest in him. The use of gas may be strongly prejudiced for no other reason than a salesman's lacking courtesy and tact.

The showroom staff should be well able to answer any questions that may arise concerning the use of the gas appliances, together with the costs of working same, and should be at all times perfectly honest in what they say of any appliance.

Showrooms should occupy a prominent place in the shopping centre of a town, and should be so attractive as readily to draw attention. Unfortunately the Leeds showrooms are not in the busiest thoroughfare; but, situated, as they are, between two of the entrances to a very busy market, the position has become well established. There are seven large display windows, and space within for showing the various appliances. It is our practice to exhibit a certain number of appliances alive—that is, lighting fittings in use, gas fires burning, water heaters at work—while a practical cookery demonstration takes place every Tuesday afternoon.

Lighting.

It is only within recent years that we have undertaken the sale of lighting fittings, burners, &c. This was previously left to the private plumbers, gasfitters, or stores; but it was found that the burners and fittings sold were not always as reliable as could be desired. We have now a section of our showrooms devoted to fittings, where are displayed artistic pendants, brackets, glassware, &c. It has been found that there is still good business to be done in well-designed fittings, in spite of competition from other forms of lighting. The lighting of a showroom is very important. If we wish to retain gas lighting, we must be leaders, and show well-lighted premises. We have endeavoured to light the interior of our showroom efficiently, and 34 fittings of different patterns are connected and used alternately. The outside is lighted by Sugg's "Littleton" lamps fitted with distance control, fixed inside; there being twelve 6-light and three 12-light lamps.

Part of the propaganda of the Gas Department has been the outside lighting of shops. The average shopkeeper looks upon the outside lamp as an unnecessary expense. We have tried to point out to him that a well-lighted street, even after shopping hours, attracts, and that many a sale may accrue from a glance in a shop window after business hours. We have therefore always made a point of practising what we preach; and we keep our outside lamps burning at our showrooms until late in the evening.

With regard to the lighting of shop windows and factories, we have a 3-years' hire-purchase system for "Littleton" lamps. This includes free renewal of mantles and glassware for that period. The charges are as follows:

4-light lamps fixed complete with distance controls and all necessary piping . .	12s. per quarter
6-light lamps	14s. 6d. " "

We are aware that there are other systems available for the general public; but there is still an enormous field for the incandescent gas burner. Gas lighting today has peculiar merits of its own from the hygienic point of view. In the first place, the products of combustion, which are composed of harmless matter, rise to the ceiling and set up a current of air in the room—a valuable aid to ventilation. In the second place, particles of dust and organic matter are constantly being drawn over the burner, and sterilized. It is, of course, these charred remains, and not any dirt in the gas, that show upon the ceiling above a gas light. Similar discoloration will also be found near hot water pipes. A third and interesting point is that gas lighting helps to warm a room as well as illuminate it. This is a matter well appreciated in the winter, especially in poorer homes.

With regard to domestic and other lighting with ordinary incandescent fittings, we have a maintenance system by which we clean the burners free of charge; the consumers only paying for the renewal of mantles, &c. Our gas inspectors leave with the consumers postcards on which are printed a variety of the complaints that occur, so that they can report any troubles by merely putting a cross opposite. In these circumstances there is no need for any consumer to have a defective gas supply, without reporting same.

A showcase is necessary for displaying silk shades, &c., and does away with the shop-soiled appearance that one notices

about shades displayed in the open showroom.

HEATING.

The showroom should be the chief advertising medium, and our consumers should know that in all their many needs in lighting, heating, and cooking they can get what they want from the Gas Department.

A good selection of appliances should at all times be attractively displayed both in the windows and in the interior of the showrooms. By this I do not mean that the windows should be crammed with appliances. It is far better to have one or two objects to stand out distinctly, than to tire the eye with too many, and fix attention on no particular one. The many neat finishes produced by the makers will help to make an attractive display. Remember, however, that your window display must cater for all classes. The main purpose of a window display is to sell goods.

We can accommodate up to seventy fires in our showrooms without any sense of overcrowding, and have eleven mantle interiors of different patterns, in some of which fires are connected, and kept continually burning when weather conditions allow. In others, fires are loosely put in position, and frequently changed. It is therefore an easy matter to show a prospective customer any fire in a natural setting. Our showrooms are void of any show of furniture, one point being to display the appliances only. All fires are ticketed with the cash price, hire-purchase, and, where let out on simple hire, the simple-hire rental is noted. This gives the consumer all information regarding prices. We are always prepared to furnish the cost of making a fire suitable for any room, and an estimate for fixing.

The key to happiness is absence of worry; and where gas appliances are installed, they tend to make this state of mind possible. The easy regulation and cleanliness associated with the use of a gas fire is much appreciated by the housewife, as there is no cleaning-up of ashes, with the accompanying cloud of dust, creating a nuisance and making more work. In sitting-rooms which are used occasionally, the gas fire is a boon, as it gives full service a few minutes after lighting.

Medical men are becoming enthusiastic supporters of gas for heating. They recognize the importance of gas heating in the sick room, whereby a strictly regulated and constant temperature can be maintained without any disturbance of the patient. As evidence of this, a Leeds specialist on chest complaints has installed fires in all his rooms. One of the prejudices against the use of gas fires, which for want of information still exists in some quarters, is that there is a drying effect on the atmosphere. This was true of the old type of fire, and was due to the lack of ventilation. Manufacturers were then scarcely concerned with the removal of the products of combustion, and the important question of ventilation was not considered. It was a common thing during this period to find a bowl of water placed in front of the fire, which the user fondly imagined would rectify this dryness. The modern gas fire has been produced after much scientific research; and the all-important question of ventilation receives practical recognition in the construction of the present-day fire. The flue is sufficiently large to accommodate the products of combustion and deal effectively with ventilation.

The basis adopted for prices for gas fires is given at the top of the next column.

As the hiring charge for gas fires is made during the winter quarters only, this induces the consumer to keep them during the summer period. The fire let out on simple-hire terms is of the plain black type with nickel fender, the more elaborate

Selling price equals makers' list, *less* 10 p.c.
3-years' hire-purchase . Makers' list price divided by 12 equals rental per quarter

Cost of fixing—
Ground floor rooms . . . . 14s. 9d.
Upstairs rooms . . . . . 25s. 3d.

If piping is already laid, actual cost of fixing only.
Exceptional piping involves an additional charge, according to measurement.
Simple hire fires are fitted free—
10-in. fires (plain black), 6s. per annum, charged only for the two winter quarters at 3s. per quarter.
12-in. fires with duplex burners (plain black), 8s. per annum, charged at 4s. per quarter for the two quarters.

being available for cash or 3-years' hire-purchase. As it is usually necessary to visit premises before definitely fixing the size of a fire, this gives our outside representative an opportunity of exercising his powers of salesmanship. All our outside representatives have had training in the fixing and adjustment of appliances. Those who have not been gasfitters have been trained by a fittings inspector, and have thus obtained a thorough insight into the practical work of gas and water fitting. They are all capable of measuring-up for the necessary material to carry out any work required, and of advising consumers as to the most suitable appliances for their needs.

At the showroom we endeavour to complete a sale as far as possible, but, as you are aware—more especially in the case of gas fires—a visit to the consumers' premises is necessary. Additionally, inquiries are received from our gas inspectors (who by the way are paid a small commission for orders received), and through the post. In all such cases triplicate inquiry forms are made out. As far as possible we try to avoid making appointments, as we find that with a large area to cover this often entails a waste of time on the part of the salesman. When it is unavoidable, appointments are entered in a book which the salesman sees before starting his morning round. The fact that all appointments are entered-up prevents any overlapping in regard to the times arranged.

COOKERS.

A varied stock of cookers is always on view in our showrooms. These include high-grade, second-grade, and re-conditioned cookers; the latter being hired-out at cheaper rentals. These are constantly being changed according to our available stock. One afternoon a week is devoted to a practical demonstration of the use of a gas cooker; and I may say that this is greatly appreciated by the general public. It is gratifying to find such interest taken in these demonstrations, which, while in progress, draw crowds of people to the window. Ladies come into the showroom for advice, and tell of their little troubles. The individual instruction that our lady demonstrator is able to give is of the greatest value to the Department. Appointments are made by our lady demonstrator to visit consumers in their own homes.

The costliness or the economy of cooking by gas is a question of common-sense and ordinary care. Where servants are kept, the whole trouble of excessive cost lies in ignorance or thoughtlessness in the manipulation. It rarely arises where the mistress of the house does her own cooking, and never when she has once learned how to use her stove. Cookers are sold on the basis of makers' list-price, *less* 10 p.c. for cash, fixing extra.

Three-years' hire-purchase, makers' list-price divided by 12 equals quarterly payment. The fixing is charged as a separate account.

In arranging the simple-hire rental, our method is to take 10 p.c. of the net cost of the cooking stove, and make this the annual rental. This recovers the cost of the appliance in ten years; but as stoves have a much longer life, we are able to recover an amount which is sufficient to pay for fixing and repairs. To the plumbing trade we give 20 p.c. off the makers' list-price; and this induces them to bring their customers to our showrooms to select the appliances required. These terms are more favourable than can be obtained by the plumbers from the makers direct, and save them carrying large stocks which become obsolete. You will find it good policy to make friends of the plumbers and gasfitters, and let them know that you can be of real help to them.

I have mentioned that we allow a 10 p.c. discount off the makers' list-price for cash transactions, whereas the full list price is charged on the 3-years' hire-purchase. To the average consumer this does not appear to be a big saving. They look upon this as a matter of 3⅓ p.c. per annum, but actually there is a saving of over 7½ p.c. per annum for the consumer by paying cash down. Let me illustrate this.

Take an appliance of the value of £12 list price. This could be sold for £10 16s. net—a difference of £1 4s., which represents over 7½ p.c. per annum.

—	Rental.	Balance.	Interest 7½ P.Ct.	Total Balance.
	£	£ s. d.	s. d.	£ s. d.
1st payment	1	9 16 0	3 8	9 19 8
2nd quarter	1	8 19 8	3 4	9 3 0
3rd ,,	1	8 3 0	3 1	8 6 1
4th ,,	1	7 6 1	2 9	7 8 10
5th ,,	1	6 8 10	2 5	6 11 3
6th ,,	1	5 11 3	2 1	5 13 4
7th ,,	1	4 13 4	1 9	4 15 1
8th ,,	1	3 15 1	1 5	3 16 6
9th ,,	1	2 16 6	1 1	2 17 7
10th ,,	1	1 17 7	0 9	1 18 4
11th ,,	1	0 18 4	0 4	0 18 8
12th ,,	..	..	..	..

When this is explained to the consumer, it often induces him to pay cash for the appliance.

WATER HEATING.

The knowledge that hot water is available at a moment's notice, and in any quantity, by having a geyser installed has only to become more widely known for the geyser to be generally adopted in the household where quick service, economy, and comfort are items of consideration. Compare the service of a geyser with that of a fire-back boiler where the water for baths on any one night is limited to the capacity of the cylinder. With a geyser, the time taken for heating sufficient water for a bath is 15 minutes, and the cost with Leeds gas is 1½d. per bath. It is unfortunate that the makers catalogue their geysers on a basis of a rise in temperature of 40° Fahr. This does not give water suitable for bath purposes. We have found on test that it is necessary to reduce the catalogue delivery capacity by one half to get a satisfactory temperature of the water.

We have connected-up in the showroom, for demonstration purposes, two sizes of geysers over a bath. In addition there are a "Lyn" boiler supplying hot water to a sink, a circulator supplying bath and sink, two small instantaneous geysers fitted to a lavatory basin, and a boiler supplying boiler water only, for tea making. We have a model kitchen and bathroom fitted-up in our showroom window, with a service geyser fixed in the kitchen, supplying water to the bathroom. The bath tap is automatically turned on and off, thus demonstrating the lighting up and turning down of the burner in the service geyser, which is fitted near the window so that it can be seen by the public.

It is a great advantage to have hot water appliances connected ready for demonstration, as it convinces the public of the utility of these appliances, and enables them to decide which type of apparatus to adopt.

The gas-heated wash-boiler is a neces-

sity in the modern home. All new houses are fitted with these appliances, while we are constantly displacing the old coal-fired set-pot. Wash-boilers are supplied on cash or hire-purchase terms. The 10-gallon size with copper lid, cast-iron rim, and brass draw-off tap we supply at 5s. per quarter; the 12-gallon size at 5s. 6d. per quarter.

A good variety of the small domestic appliances, such as gas irons, boiling rings, hotplates, grillers, toasters, &c., is always kept in stock; and we have various connections throughout the showrooms for demonstrating these appliances.

The duties of the showroom staff are many and varied, and a large number of records are kept. Applications for meters are entered in a duplicate book in which various particulars have to be recorded—full name and address, also the address where gas has been used before, and the number of lights and appliances likely to be used. This order, after particulars are entered, is forwarded to the meter inspection department, for checking purposes. From there the order proper is sent to the fittings department. A special agreement has to be signed by applicants for slot meters; this having been drawn up by the Town Clerk. In this the consumer agrees to indemnify the Corporation against any loss they may suffer by the breaking open of, or other damage to, the prepayment meter. After being duly signed and witnessed, this form is also sent to the meter inspection department, where it is checked, and an order is sent to the fittings department. The agreement is then numbered and filed. Another book which is kept in the showrooms is the "change of tenancy" book. In this we record removals and new tenancy. This is a duplicate book; and again the form is dispatched to the meter inspection department, to be dealt with by the change inspector. In addition to sales, there are the various complaints, inquiries, and reports with which to deal.

All urgent matters, such as escapes, &c., are immediately telephoned by private line to the escapes department.

It is essential to have good inter-departmental communications; and we have an efficient telephonic service throughout the Gas Department. A private line brings the showrooms in direct communication with the fittings department. From there, contact with its various sections is only a matter of moments, and so we are able to get information without delay. Nothing is more annoying than to be kept waiting any length of time while inquiries are being made. We have also a regular messenger service for the collection of orders, &c.

All orders for appliances (cash, hire-purchase, or simple-hire) are made out in the showrooms in duplicate. The order contains a full record of the appliance fitted, material used, and the fitters' time, and is passed to the various departments for recording purposes.

In the case of sold orders, when the charge has been passed on to the Treasurer's department, for collection, copies of the charges are sent through with the order number, and forwarded to the showrooms, and these are then checked with our original copy. We then know if any charges have been omitted.

During the past year orders for appliances have passed through the showrooms as shown in the table below.

There is one matter which I must not allow to pass unnoticed, though it is not strictly connected with showrooms. I refer to the sale of appliances for buildings in course of erection. The system which we have at Leeds is as follows:

A showroom has been opened at our Springwell Street Depot, for the convenience of architects and builders. Here has been fitted a varied selection of register gas grates, cookers, wash-boilers, geysers (all types), "Lyn" boilers, and independent coke boilers. All these appliances are connected, and ready for demonstration at any time. A bath, lavatory basin, and sink are connected, so that a complete test under working conditions can be made.

To all the gas appliances are connected test meters, so that the architect or builder can be shown exactly the amount of gas registered. One official deals exclusively with new buildings, and has been successful in persuading many builders in the city to visit this showroom. The early results so far have been satisfactory; and we are hoping for larger developments in the near future. Some of you will know how difficult it is to persuade a tenant to have floor boards taken up in a new house, to instal gas fires. We therefore endeavour to avoid this by seeing the builder even before the foundations are laid. In order to assist us in this matter, the City Engineer forwards to us a complete list each month of the plans that have been approved for new property. This enables us to keep in touch with the prospective builder immediately.

It is our practice when laying mains on new estates to charge the builder a sum of £4 as a contribution to the cost of laying such mains. This was necessary as the builder did not make any arrangements for gas supply other than a wash-boiler. Certain concessions are, however, now being made in order to induce the builder to consider the uses to which gas can be put—that is to say, if a wash-boiler and gas cooker are purchased from the Corporation, and the gas cooker is the only means of cooking, the charge for the gas main will be reduced by £2; and if, in addition to the above, gas fires are fixed in bedrooms, and the supply run for a gas fire in a parlour, the gas mains are run free.

We have also a large showroom devoted to industrial appliances, in which is fitted a large variety of furnaces for the heat treatment of metals, &c. Demonstrations are carried out by the Department's own experts.

Discussion.

The CHAIRMAN complimented Mr. Shepherd on an excellent paper.

Mr. SHAPLEY said that the attendance demonstrated the interest the salesmen had in the gas industry. What the Leeds showrooms lacked in size was, he thought, compensated by a highly efficient staff. This was shown by the number of appliances which had been put on the district in 1925, as quoted by Mr. Shepherd.

Mr. L. DENHAM (Halifax) asked Mr. Shepherd whether they tested appliances at the pressure on the district where the apparatus would have to work or in the workshop. Did they tell the consumer the consumption of the appliances?

Mr. A. E. LEASK (Leeds) said they tested the appliances fully, and always stated a figure regarding consumption which they could reproduce at the consumer's address.

Mr. A. WYLIE (Sheffield) remarked that the returns of the showrooms in Leeds showed that the organization was very efficient. There was, he thought, no need to be in any way pessimistic in regard to any form of gas use. Mr. Wylie said he was in favour of the closest possible co-operation with builders, and he instanced the system in operation whereby builders were paid a sum of money per point for pipes run according to specification.

Mr. S. H. PACKER (Bradford) said they all agreed that showrooms were absolutely necessary. Small undertakings should realize that large and expensive premises were not essential, but that each concern should have its own showrooms, however small; the main idea being to form a permanent exhibition where consumers could inspect the latest appliances. Regarding showroom staff, Mr. Packer said they should be tactful and courteous. The salesman was the connecting link between the consumer and the undertaking. Regarding lighting, the best way to keep gas lighting to the fore, and retain the lighting load, was by displaying and using the best possible fittings. Recently, they had sold three fittings at £12 12s. each. If one had not the courage to put such fittings as these before the consumers, it was only a natural sequence that they would adopt other than gas as an illuminant As regards outside lighting, he thought that low pressure would take the place of high pressure. He would like to ask Mr. Shepherd if he thought that free maintenance for lighting was a paying proposition. He (Mr. Packer) did not think so. Regarding the display of shades, while he was in favour of showcases, he did not think many sales would result if bead and silk fringes were not also shown on lighted fittings. Windows were to sell goods; and the greater the variety of the goods and of the display, the more sales would result. He too was of the opinion that furniture did not sell gas appliances. When these appliances were tastefully arranged so as to avoid overcrowding, the best results would accrue. He advocated the inclusion, on the staff of those undertakings who could afford it, of a permanent lady demonstrator. He did not like the idea of cookery demonstrations being given in the window, for, apart from the few at the front of the window, the other onlookers would not be able to see properly. A demonstration room where people could witness the actual cooking was by far the better plan, for not only could economical recipes be given, but much useful propaganda work could be accomplished. He agreed with Mr. Shepherd that they should work hand in hand with the plumbers, for by so doing they were not only increasing their turnover, but making certain that good appliances were being put on the district. For price tickets, Mr. Packer advocated separate tickets for cash, hire purchase, and hire, and said that at times it was advisable to have a display of all cash prices, and at another time, all hire purchase. If three prices were shown, they were, he thought, apt to confuse the consumer. The best way to sell hot water appliances was by practical demonstration. He referred to a statement made to him by Mr. Leask, of the Leeds Gas Department, that during the war he (Mr. Leask) had never lost an order for a furnace when once it had been demonstrated. This applied to-day, especially with regard to café appliances; and the more they could demonstrate, the more orders they would get. In conclusion, Mr. Packer asked Mr. Shepherd if they had fixed many coke boilers, and if they had had any trouble from local plumbers by so doing.

Mr. SHEPHERD, in reply, said that, to retain the lighting business, it was necessary to keep

1925.	Cookers.	Fires.	Geysers and Water Boilers.	Wash Boilers.	Lighting Fittings.		Oven Conversions.	Hot-plates.	Sundries.
					Pendants.	Brackets.			
January	228	607	10	45	97	128	16	37	85
February	338	472	11	54	283	385	20	181	109
March	449	338	12	64	469	643	24	326	133
April	397	179	11	57	227	312	6	207	79
May	583	165	15	32	372	507	13	647	103
June	704	139	14	61	414	593	38	674	107
July	647	179	16	56	524	715	37	775	113
August	432	223	42	19	538	680	13	515	75
September	456	588	16	71	481	827	6	449	139
October	506	838	24	53	751	1104	12	648	158
November	456	1511	11	58	695	1017	14	575	119
December	308	927	21	47	390	606	11	264	114
Totals	5504	6166	203	617	5241	7517	210	5298	1334

the burners in good condition; and the consumers were not always able to do this. The Leeds Gas Department cleaned the burners free, but charged for all the materials used. The maintenance system was, of course, an expense, but it was the Department's contribution to the maintenance of the lighting load, and the expenditure was well worth while. They had a number of lighting fittings displayed complete with shades, but their stock of shades was kept in showcases. The window cookery demonstration had been very successful, and was carried out throughout the year. They had not yet facilities for a cookery demonstration room, but there was no doubt this would be a matter for future consideration. With regard to price tickets, they considered it advisable to give consumers all the information possible; and therefore they put on the tickets the cash, hire-purchase, and simple-hire prices. A number of coke boilers had been fitted, with very satisfactory results.

Mr. F. W. ADAMSON (York) did not agree with charging hire for fires in the winter quarters only. He had experience of this, but found that the yearly charge was best paid in advance. Regarding gas fire flues, he said that though they were responsible for saving a good amount of space, he considered the price of flue blocks was too high.

Mr. J. B. BALMFORTH favoured a free maintenance scheme, and gave his experience of having made a charge of 3d. per burner per visit. Out of 6000 consumers circularized, they had received 60 acceptances.

The CHAIRMAN said it was not necessary to spend vast sums of money in building expensive showrooms. Perhaps the better plan would be to have branch showrooms, especially in a large town like Leeds. It would be possible for consumers on the out-districts to be catered for near their homes. The strength of a chain of multiple shops bore out this idea.

Mr. M. MCENNERNEY (Keighley) proposed, and Mr. P. WILSON seconded, a vote of thanks to Mr. Shepherd, who suitably responded. Thanks were extended to the Leeds City Council and Mr. C. S. Shapley for the facilities granted for holding the meeting, on the motion of the CHAIRMAN, seconded by the VICE-CHAIRMAN (Mr. S. Lodge, Wakefield).

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